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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/256,079	02/24/1999	YUMIKO KAWASAKI	837.1196/JDH	9353

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EXAMINER

TRAN, DZUNG D

ART UNIT PAPER NUMBER

2633

DATE MAILED: 01/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/256,079

Applicant(s)

KAWASAKI ET AL.

Examiner

Dzung D Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 10/15/2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is responsive to the amendment filed on 10/15/2002.

Specification

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa U.S. patent no. 5,917,637 in view of Utsumi U.S. patent no. 6,031,644.

In considering claims 1 and 16, Ishikawa et al. disclose a method/apparatus comprising the step of:

outputting an optical signal having a chirping determined by a chirp parameter to an optical fiber transmission line (column 2, line 37-39, column 3, lines 51-54 and column 6, lines 36-43),

converting the optical signal transmitted by said optical fiber transmission line into an electrical signal (column 7, lines 33-35),

detecting a bit error of said electrical signal (column 10, lines 9-14), and

controlling said chirp parameter so that said bit error detected is reduced (column 2, lines 43-46, column 3, lines 59-65).

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Ishikawa differs from claim 1 of the present invention in that he does not specifically disclose for generating optical modulating signal by adding a redundancy code to a transmission data code and correcting said bit error of said electrical signal according to said redundancy code, wherein said detecting including counting the number of corrections of said bit error obtained in said correcting and wherein controlling chirp parameter base upon comparing between a first number of corrections of said bit error and a second number of corrections of said bit error. Utsumi discloses for generating optical modulating signal by adding a redundancy code to a transmission data code (column 4, line 55 to column 5, line 13) and correcting said bit error of said electrical signal according to said redundancy code, wherein said detecting including counting the number of corrections of said bit error obtained in said correcting (column 5, lines 27-32) and wherein controlling chirp parameter base upon comparing between a first number of corrections of said bit error and a second number of corrections of said bit error (figures 7 and 8, column 6, lines 35-65). Since forward error correction (FEC) encoder and decoder is well known in the art for adding a redundancy code to a transmission data code and correct a bit error respectively, it would have been obvious to an artisan at the time of the invention was made to include the teaching of Utsumi in the system of Ishikawa et al. in order to detect and control the bit error for compensating chromatic dispersion.

In considering claim 2, Ishikawa et al. disclose the step of switching the sign of chirp parameter (column 9, lines 41-49).

In considering claim 3, Ishikawa et al. further disclose Mach-Zehnder optical modulator and step of switching an operating point of Mach-Zehnder optical modulator (column 9, lines 41-49).

In considering claim 4, Ishikawa further discloses control unit for changing a bias voltage to be applied to electroabsorption optical modulator, thereby adjusting chirp parameter to an optimum value so that bit error detect is minimized (column 2, lines 32-46).

In considering claim 5, Ishikawa et al. further disclose an electro-absorption optical modulator (column 1, lines 44-45, 55-56 and column 2, lines 33, 38 and 49).

In considering claim 16, Ishikawa et al. further disclose an optical transmitter for outputting an optical signal having a chirping determined by a chirp parameter to an optical fiber transmission line (column 2, lines 37-39, column 3, lines 51-54 and column 6, lines 36-43), an optical receiver (figure 12, element 68) for receive supervisory information on a bit error detected in relation to the optical signal transmitted by optical transmission line, and a control unit (figure 10, element 10) for controlling chirp parameter according to a control signal.

4. Claims 7 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa U.S. patent no. 5,917,637 in view of Utsumi U.S. patent no. 6,031,644 and further in view of Aoki U.S. patent no. 5,315,426.

In considering claims 7 and 10, as per claims above, Ishikawa et al. disclose first terminal device (figure 12, element 66) and second terminal device (figure 12, element 70), and an optical fiber transmission line (figure 12, element 72) connecting said first

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and second terminal device. First terminal device comprising an optical transmitter for outputting an optical signal having a chirping determined by a chirp parameter to an optical fiber transmission line (column 2, lines 37-39, column 3, lines 51-54 and column 6, lines 36-43) and a control unit (figure 10, element 10) for controlling chirp parameter according to a control signal. Second terminal device comprising an optical receiver (figure 12, element 68), a monitor unit for detecting a bit error of electrical signal and for transmitting supervisory information to first terminal whereby control signal is generated in first terminal device so that bit error detected is reduced (column 9, line 66 to column 10, line 13), Utsumi discloses for generating optical modulating signal by adding a redundancy code to a transmission data code (column 4, line 55 to column 5, line 13) and correcting said bit error of said electrical signal according to said redundancy code, wherein said detecting including counting the number of corrections of said bit error obtained in said correcting (column 5, lines 27-32) and wherein controlling chirp parameter base upon comparing between a first number of corrections of said bit error and a second number of corrections of said bit error (figures 7 and 8, column 6, lines 35-65). The combination of Ishikawa et al. and Utsumi differ from claims 7 and 10 of the present invention in that it does not specific disclose second-terminal device comprising an optical receiver for converting the optical signal transmitted by said optical said optical fiber transmission line into an electrical signal, Aoki discloses an optical receiver for converting the optical signal transmitted by said optical said optical fiber transmission line into an electrical signal (figure 2, element 32). Since photodetector is well-known in the art for convert an optical signal to electrical signal, it

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would have been obvious to an artisan at the time the invention was made to include a photo-detector in a receiver of Aoki in the receiver of Ishikawa in order to obtain the control electrical signals for detect a bit error signal and control the chirp parameter.

In considering claim 11, Aoki discloses a transmitter included an optical amplifier (figure 2, element 17 and column 4, line 23).

In considering claim 12, Aoki discloses a receiver included an optical amplifier (figure 2, element 33 and column 4, line 39).

In considering claim 13, Aoki discloses an optical transmission line is provided by a dispersion shifted fiber having a zero-dispersion wavelength near 1.55 m (column 4, lines 32-34).

In considering claim 14, Ishikawa discloses the fiber optic transmission path having a zero –dispersion wavelength within a 1.3 m band (column 10, line 13-15)

In considering claim 15, dispersion compensating fiber for compensating chromatic dispersion occurring in optical transmission line is well known in the art.

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa et al.U.S. patent no. 5,917,637 and Utsumi U.S. patent no. 6,031,644 in view of Aoki U.S. patent no. 5,315,426 and further in view of Brenner et al U. S. patent no. 6,115,403

In considering claim 8, as per claims above, The combination of Aoki, Ishikawa and Utsumi disclose all the limitations except for transmitter comprises a light source for outputting continuous wave (CW) light and a Mach-Zehnder modulator for modulating CW light to generate an optical signal. Brenner et al. disclose transmitter comprises a

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light source for outputting continuous wave (CW) light and a modulator for modulating CW light to generate an optical signal (column 1, lines 16-20). Since the optical signals which are generated by operating a laser in a continuous-wave (CW) mode is well known in the art, it would have been obvious to an artisan at the time the invention was made to include the light source and Mach-Zehnder modulator taught by Brenner in the combination transmission system of Aoki, Ishikawa and Utsumi in order to emit a steady stream of laser light.

In considering claim 9, Ishikawa further discloses control unit for changing a bias voltage to be applied to electroabsorption optical modulator, thereby adjusting chirp parameter to an optimum value so that bit error detect is minimized (column 2, lines 32-46).

Response to Arguments

6. Applicant's arguments with filed on 10/15/2002 have been fully considered but they are not persuasive. The independent claims 1, 7 and 16 are now amended to include the limitation of "wherein controlling chirp parameter base upon comparing between a first number of corrections of said bit error and a second number of corrections of said bit error" and applicant argues that the cited references fail to teach such limitation. Examiner respectfully disagrees because Utsumi discloses for controlling chirp parameter base upon comparing between a first number of corrections of said bit error and a second number of corrections of said bit error (figures 7 and 8, column 6, lines 35-65).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (703) 305 0932. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-6743 for regular communications and (703) 872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Dzung Tran
December 17, 2002



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SUPERVISORY PATENT EXAMINER
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